Regional Sales of Automobiles

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SALES of automobiles have experienced wide fluctuations in recent years, and, during the depression, there were marked shifts in sales as between different geographical areas. However, by 1936 the predepression relationships had generally been reestablished.

The main reason for these fluctuations in Nation-wide sales, so far as passenger cars are concerned, is the variation in employment and income, and especially the amount of the income which is in excess of that needed for immediate essentials. Also, the durable character of the automobile makes it possible to defer the purchase of a new car for a considerable period. As the depression deepened, the margin of income above that needed for everyday minumum expenses was sharply curtailed. In a large number of instances, it was only with the greatest difficulty that minimum

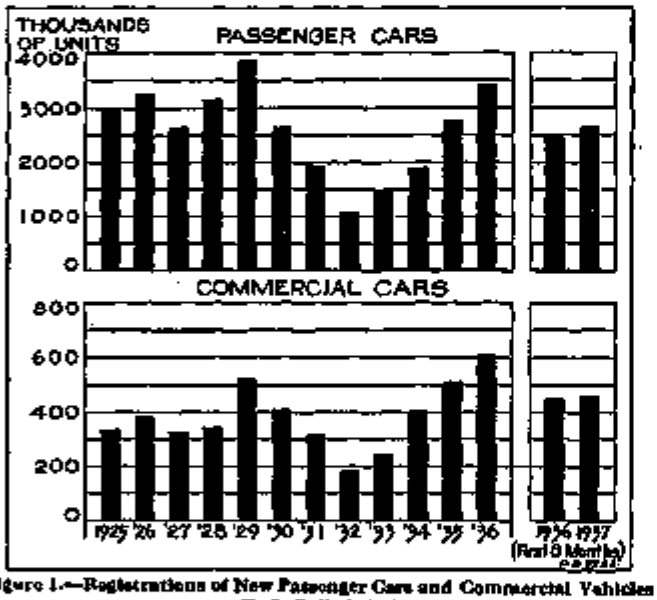

Figure 1.—Registrations of New Passenger Cars and Commercial Vehicles (R. L. Polk & Co.).

requirements could be met. Car owners postponed replacements which under more favorable conditions might have been made, thus taking fuller advantage of the potential useful life of cars. The number of cars in use also decreased. As recovery proceeded, with its widening of the margin of individual income over minimum needs, and with brightened prospects, more and more owners were able to make replacements. This, together with purchases by new owners, resulted in sharp gains in sales.

Commercial car sales are subject to the same basic influence—that is, changes in income—but certain additional characteristics are peculiar to the marketing of this commodity. For industrial concerns, curtailed activity during the depression resulted in closing of plants, and in allowing machinery and equipment, including trucks, to stand idle. In smaller establishments, especially retail stores, less equipment was needed and replacement of delivery vehicles was postponed for a time by utilizing the best equipment.

New registrations (hereafter referred to as sales) of passenger cars and trucks are depicted in figure 1 for the full period for which they are available. Passenger-car sales in 1936 were three times as large as in 1932 but remained 12 percent below the 1929 total, while commercial-car sales were the largest ever recorded, and nearly three and a half times those for 1932. The prompt and substantial gain in sales during 1933 was evidence of the accumulated needs for new cars and of the desire of the individual to utilize his increased spending power promptly.

Changing Characteristics of Vehicles Sold.

For passenger cars, significant shifts have occurred during recent years in the proportion of sales falling in the different price classes, while for commercial cars the change has been in the carrying capacities of the cars purchased. As shown in figure 2, there was a decided shift during the depression to passenger cars selling in the lowest price range. This, of course, has reflected the declining prices of cars, as well as the tendency toward economy on the part of buyers. Since 1933 there has been a marked shift away from cars in the lowest price range, but the bulk of the buying (nearly 95 percent) is still concentrated in cars wholesaling at prices not exceeding $750. The major shift over this period was from cars wholesaling at less than $500 to cars selling at between $500 and $750. Though the gains in income paid out during the last several years have resulted in increased sales of cars falling in the $751–$1,000 price range, their proportion of total sales has not shown much of an advance, while in the higher brackets sales have increased absolutely but are smaller relatively. Thus, in the medium-price class ($751–$1,000) units sold in 1936 totaled 143,000, a gain of 111,000 over 1933; sales in 1936 for this class were 3.7 percent of all sales, as compared with 2 percent in 1933. For cars selling over $1,000, 1936 sales totaled 57,000 units, or 1½ percent of total sales, while in 1933 sales of 41,000 units represented about 2.5 percent of all sales.

In the commercial-car field, the shift has been from the heavy to the light truck. As in the case of passenger cars, this has reflected in part the tendency toward less expensive equipment. Other factors that have been partly responsible for the trend away from heavier equipment include the increased efficiency of the light truck, which has made it profitable for operators to replace heavier equipment and to lower maintenance costs. Figures compiled by the Automobile Manufacturers' Association reveal the extent of the

trend toward lighter equipment. Thus, trucks with a capacity of three-fourths of a ton or less accounted for 38.6 percent of all factory sales in 1936 as compared with 17.1 percent in 1929. Trucks having a capacity of from 1 to 1½ tons accounted for only 1.1 percent of sales in 1936 as compared with 9.5 percent in 1929, while in the next heaviest capacity class (1½ tons and less than 2) the proportion declined from 63.4 to 52.0

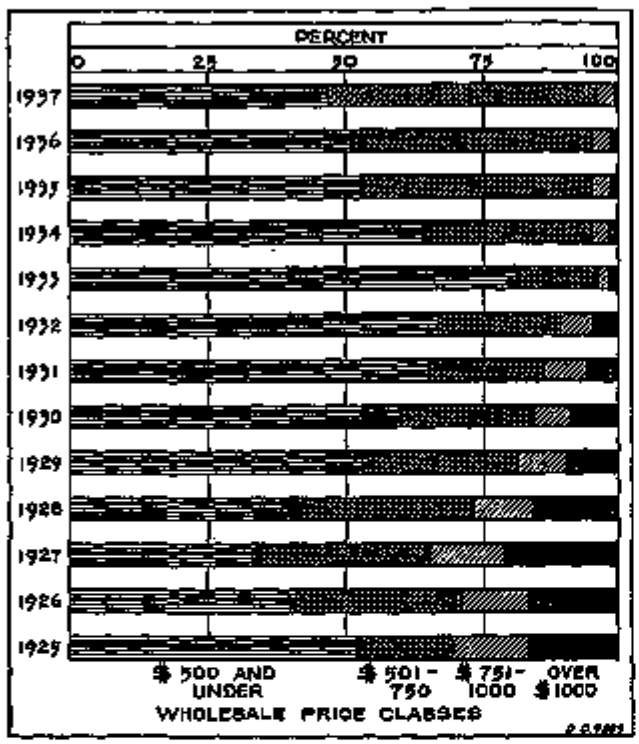

Figure 2.—Factory Sales by Wholesale Price Classes, United States and Canada. (Automobile Manufacturers' Association)

Note.—Figures for 1937 are based on sales for the first 7 months.

over this interval. While the major shifts in the capacities of trucks purchased have occurred in these three capacity groups, purchases of heavy types of trucks (capacities in excess of 2 tons) have shown the same tendency, except for those with a capacity of 5 tons or over. For this last classification, which includes heavy trailer types, sales in 1936 were nearly twice those of 1929, and their relative proportion of total sales rose from 1.5 to 2.6 percent.

Passenger Car Sales and Purchasing Power.

Though the fluctuations in sales of motor vehicles are large, the year-to-year changes during recent years have corresponded in a general way with changes in the national income paid out. Data on total national income paid out, compiled by this Bureau, are shown in figure 3 plotted against the estimated value of retail sales of passenger cars.[1]

The relatively wide fluctuations in sales of passenger cars are evident from this chart, but the extent of shifting of consumer purchases during the various stages of the business cycle cannot be determined. However, it is definitely known that the income classes comprising the wage earners, which are the most seriously affected by the changes in the trend of business, account for by far the largest part of the cars

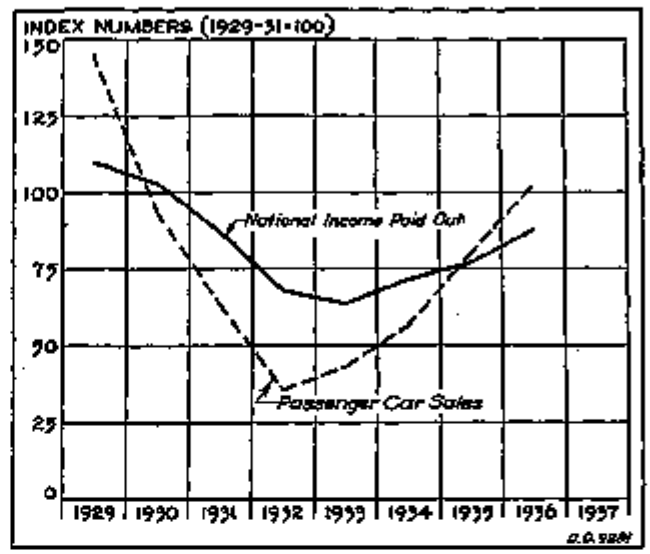

Figure 3.—New Passenger-Car Registrations Compared With National Income Paid Out (Bureau of Foreign and Domestic Commerce).

Note.—For a discussion of the data on new passenger-car registrations, see note 1, this page.

owned. Studies made by the Bureau of Foreign and Domestic Commerce, based on data collected in 1934, show that for 34 cities nearly 70 percent of the cars in operation were owned by families having incomes of less than $2,000 in that year.[2] It is true, no doubt, that many of these cars were purchased when family incomes were somewhat higher. Data compiled by the Bureau of Labor Statistics on the ownership of automobiles by wage-earning families at different economic levels in five Pennsylvania cities [3] show the same general situation in those cities.

[1] The data on passenger-car registrations are compiled by R. L. Polk & Co. and are converted to a value basis by multiplying the annual totals of new passenger-car registrations by the weighted average retail prices of all cars. The average prices used are those determined for the purpose of compiling the Bureau's index of sales of new passenger automobiles. (For full details, see the April 1934 issue of the Survey of Current Business).

These average prices are based on retail prices paid in the country as a whole; their use in arriving at estimates of the value of annual sales for the several States and geographical areas in the charts is fairly consistent, since the relationship of sales of the various makes of cars in such areas to total sales in those areas is about the same as the relationship of sales by make the country over to total United States sales. There were, of course, certain exceptions to this generalization. The most important one was found in the comparison between sales in West South Central States and farm income. In that area, sales of one low-priced car in 1936 accounted for 38 percent of all car sales, whereas for the entire country the percentage for this make was 27. Thus, this relatively low-priced car does not receive a sufficiently heavy weight in the average price used; the series, has as a result, a slight upward bias. The same situation occurs in the West North Central area, with the upward bias apparently about the same as in the first-mentioned instance.

[2] Consumer Use of Selected Goods and Services by Income Classes, by the Consumer Market Section of the Bureau of Foreign and Domestic Commerce. This series of studies, including a total of 60 cities and a coverage of approximately a quarter of a million families, will be completed with the release in October of a report (M. R. S. No. 5.12) giving data for each of the remaining 16 cities. The original reports include statistics by cities for automobiles and various other items of "consumer durable goods".

The basic commodity information was obtained in 1934 from individual families, comprising a representative random sample of the entire family population of each city covered, who reported on their respective incomes for the preceding year. The combined figures for all 60 cities are believed to be representative of the whole urban market, with the possible exception of the metropolitan areas with populations of more than 1,000,000.

[3] Cost of Living, Monthly Labor Review, June 1937, pp. 1362-3, based on a study of money disbursements of wage earners and lower-salaried clerical workers, 1933-36.

Comparison of sales with various indicators of purchasing power by States and by regions reveals some interesting facts, although the data on purchasing power used here include only a part of the total income in the States and regions selected. Thus, the factory pay-roll data by States, which are readily available in most instances, represent only a part of the total income. Farm income data are also readily obtained, but again, even in typical agricultural areas, sources other than farms contribute heavily to total income. Detailed figures by States on income and, as in the comparison on the national basis, data showing changes from year to year in the proportion of total income spent on cars are lacking. As a result it is difficult to estimate accurately changes in market prospects. However, the available data can be used in determining roughly the relationship between income and sales, and the following suggestions indicate a few of the possibilities. For several selected areas, passenger-car sales are shown in the accompanying charts plotted against certain series indicating changes

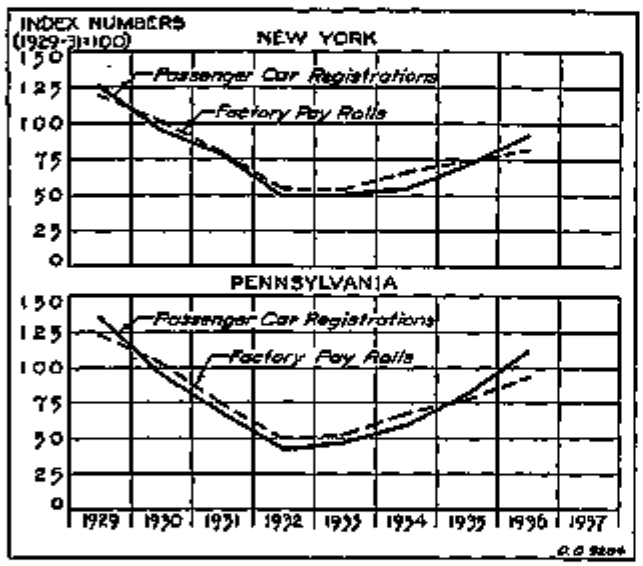

Figure 4.—New Passenger-Car Registrations in Two Industrial States Compared With Factory Pay Rolls. (Bureau of Foreign and Domestic Commerce, New York State Department of Labor, and the Federal Reserve Bank of Philadelphia.)

Note.—For a discussion of the data on new passenger-car registrations, see note 1, page 13.

in purchasing power. In the two industrial States (fig. 4) a close relationship is shown between car sales and factory pay rolls, though only a part of purchasing power is represented by the pay-roll figures.

In the comparison between passenger-car sales and cash income (fig. 5) two typically agricultural areas have been selected. In both of these regions cash income from farm production is generally the most important source of income. Also, the West North Central region is the most important agricultural area, from the standpoint of the amount of cash income received from farm production. The second most important agricultural area, the East North Central States, was not included here because manufacturing operations in this region provide a far larger part of income than does the operation of farms. The West South Central area, the second selected for purposes of analysis, is the third most important contributor to total cash income from farm production.

In these two areas the correlation between the purchasing-power factor and passenger-car sales, while significant, is not so close as in the case of factory pay rolls and car sales in the two industrial States. Two possible explanations may be suggested. First, while farm income is the most important source of purchasing power, it is not so dominantly important as factory pay rolls in the two industrial States mentioned. Second, farm income as used here is before allowances for the expenses of farm operations. These expenses must be deducted before actual purchasing power of farm operators, so far as sales of such items as automobiles are concerned, can be estimated.[4]

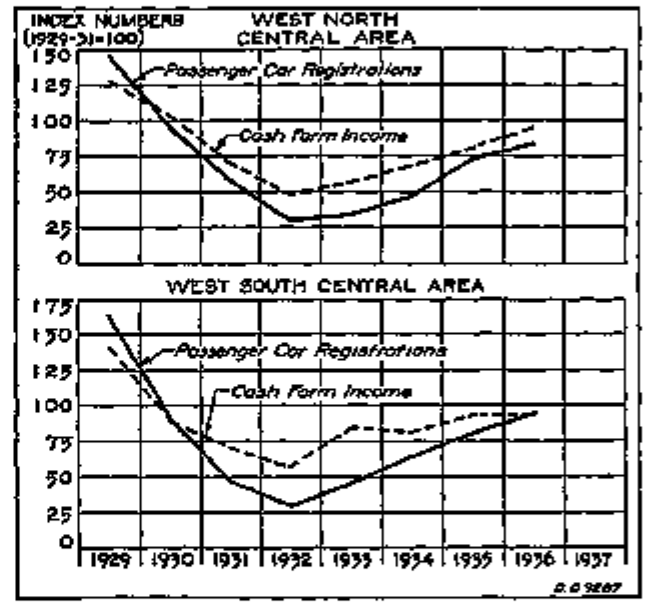

Figure 5.—New Passenger-Car Registrations in Selected Agricultural Areas Compared With Cash Income From Farm Production.

Note.—The series on cash income, which are compiled by the U. S. Department of Agriculture, relate to the value of quantities actually sold off the farms where produced. A more satisfactory measure of farmer purchasing power is income available for the operators' labor, capital, and management, which represents all income less expenditures for operations, depreciation, taxes, wages, etc. This series represents residual purchasing power which is actually available for buying items such as automobiles. These data, however, are not available on a regional basis. The figure for 1936 is estimated from the Department of Agriculture's monthly figures on cash income from farm marketings. For a discussion of the data on new passenger-car registrations, see note 1 on page 13.

Numerous similar comparisons can be made using the various State and city indexes of factory pay rolls and like data by States compiled by the Bureau of Labor Statistics. That Bureau also publishes month-to-month percentage changes in pay rolls for nonmanufacturing industries by States. These include construction, retail and wholesale trade, mining and quarrying, public utilities, and several important service industries. The data on cash farm income from farm production are also available by States. All of these figures can be obtained on a monthly basis, which considerably enhances their value in an analysis of this description.

[4] See the note accompanying chart 5.

Sales by States and Geographical Areas.

In the accompanying table the distribution of sales of new passenger cars is shown by States and geographical areas for the years 1925–36, together with data showing purchases per 1,000 population for 2 years. In figure 6 data for the five principal geographical areas are shown plotted on a semilogarithmic scale. The table shows clearly how the various States and geographical areas have shared sales of new passenger cars in recent years. During the relatively good years, 1927–30 and 1934–36, sales in the East North Central region were larger than in any other area, but in the depression years, 1931–33, sales in the Middle Atlantic States were the largest. In making such a comparison, the relative size of the areas in terms of population, and the number of cars purchased per 1,000 population, are important considerations. The population of the East North Central States, for example, is slightly smaller than that of the Middle Atlantic States, the larger number of cars usually purchased in the former area reflecting higher sales per 1,000 population than in the latter area.

The East North Central and Middle Atlantic areas, with about 40 percent of the country's population, usually account for a little less than one-half of the total car sales, while the West North Central area with about 11 percent of the population is generally third, with from 10 to 13 percent of all cars sold. During 1933 and 1934, the last-mentioned group of States dropped to fourth place, with the South Atlantic area accounting for a slightly larger number of sales. For the full period covered by the table, there were no particularly significant shifts in the relative number of cars sold in the various districts. In 1936, as in 1925, the first three positions were held by the East North Central States, the Middle Atlantic States, and the West North Central States, respectively. By 1936 the Pacific States, where purchases per 1,000 population exceed

Geographical Distribution of New Passenger-Car Registrations and Number of Registrations Per 1,000 Population

State and geographical area	Percent of total registrations												Per 1,000 population	
	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1929	1936
United States	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	31.9	28.6
New England	6.6	6.9	6.9	6.8	6.7	7.0	6.6	6.5	7.8	7.1	6.4	6.7	28.1	26.4
Maine	.5	.7	.7	.6	.6	.7	.5	.7	.6	.6	.5	.5	26.4	21.9
New Hampshire	.4	.4	.4	.4	.3	.4	.5	.6	.4	.4	.4	.4	29.3	24.1
Vermont	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	33.2	22.1
Massachusetts	3.6	3.1	3.4	3.5	3.5	4.0	4.0	4.5	4.2	3.7	3.3	3.4	31.8	30.5
Rhode Island	.6	.4	.6	.5	.6	.5	.7	.7	.7	.5	.5	.6	31.4	28.4
Connecticut	1.3	1.3	1.5	1.5	1.4	1.6	1.7	1.0	1.5	1.5	1.4	1.5	35.1	29.6
Middle Atlantic	18.9	18.8	20.6	19.8	19.6	21.9	24.5	26.6	23.7	20.0	18.9	20.2	27.8	25.1
New York	7.8	8.0	9.0	9.3	8.8	10.2	12.2	13.6	11.8	8.5	8.6	8.9	26.7	23.4
New Jersey	2.9	3.2	3.6	3.5	3.1	3.7	4.4	4.8	3.8	3.2	3.1	3.3	30.7	25.8
Pennsylvania	7.3	7.6	8.0	7.0	7.9	7.9	7.9	8.2	8.1	7.3	7.6	8.0	28.1	27.0
East North Central	32.6	31.8	33.3	34.0	35.3	33.8	33.3	33.1	33.8	39.4	34.9	33.8	39.9	34.4
Ohio	5.7	5.6	5.9	6.0	6.9	6.0	5.8	5.9	6.3	6.8	6.8	7.2	40.4	39.5
Indiana	2.4	2.2	3.4	3.6	3.1	2.7	2.8	2.7	2.7	2.8	2.3	2.4	37.0	33.0
Illinois	6.0	5.8	5.7	5.9	6.1	6.2	6.3	6.7	5.7	5.8	6.8	6.0	34.3	30.1
Michigan	6.7	5.0	6.4	6.4	6.5	6.3	5.8	5.5	5.7	6.8	6.7	6.7	53.4	47.6
Wisconsin	2.8	3.0	3.0	2.8	2.7	2.7	2.5	2.3	1.9	2.2	2.6	2.6	35.3	30.6
West North Central	14.9	13.3	12.7	13.0	13.0	13.2	11.7	10.7	10.4	10.7	11.6	10.5	23.1	20.0
Minnesota	2.7	2.5	2.3	2.1	2.3	2.5	2.4	2.2	2.1	2.0	2.4	2.4	25.6	21.0
Iowa	3.0	2.9	2.6	2.8	2.8	2.9	2.4	1.8	1.8	2.1	2.5	2.1	42.9	28.3
Missouri	3.5	3.1	3.2	3.0	3.2	3.3	3.2	3.0	3.1	2.9	2.7	2.5	31.8	23.1
North Dakota	.9	.5	.5	.7	.0	.4	.4	.4	.4	.3	.5	.3	25.5	16.0
South Dakota	.7	.0	.7	.6	.8	.7	.5	.4	.3	.4	.5	.4	44.1	19.6
Nebraska	1.1	1.0	1.5	1.7	1.7	1.6	1.3	1.0	1.1	1.2	1.1	1.1	47.1	27.0
Kansas	2.1	1.8	1.9	1.7	1.0	1.7	1.6	1.3	1.5	1.7	1.8	1.6	39.2	28.7
South Atlantic	11.8	11.1	10.6	9.4	9.1	8.5	10.5	10.6	10.8	13.0	10.8	9.2	24.6	19.3
Delaware	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	37.4	32.7
Maryland	1.2	1.3	1.3	1.2	1.2	1.4	1.5	1.7	1.3	1.3	1.3	1.3	29.9	20.4
District of Columbia	.6	.5	.5	.5	.5	.5	1.2	1.2	1.0	1.0	1.0	1.0	48.0	53.0
Virginia	1.6	1.6	1.6	1.5	1.5	1.7	2.0	1.9	1.5	1.7	1.7	1.5	24.7	18.8
West Virginia	1.1	1.0	1.2	1.0	1.0	1.1	1.0	.9	1.0	1.3	1.0	1.1	22.9	20.4
North Carolina	2.2	2.0	2.3	1.5	1.7	1.3	1.5	1.4	1.0	2.4	2.0	1.5	20.5	14.3
South Carolina	.9	.8	.8	.5	.8	.7	.7	.6	1.0	1.1	.9	.7	18.9	12.9
Georgia	1.1	1.2	1.4	1.1	1.1	1.0	1.3	1.3	1.0	1.7	1.4	1.3	14.2	14.2
Florida	2.1	2.4	1.9	1.2	1.0	1.3	1.3	1.3	1.2	1.4	1.2	1.1	26.7	23.7
East South Central	6.0	6.2	4.7	4.8	5.1	4.8	5.9	5.7	6.4	6.1	4.4	4.8	20.2	13.4
Kentucky	1.3	1.2	1.2	1.3	1.4	1.3	1.4	1.3	1.4	1.4	1.3	1.2	20.3	13.9
Tennessee	1.4	1.4	1.2	1.3	1.4	1.4	1.3	1.1	1.3	1.5	1.4	1.2	21.3	14.7
Alabama	1.2	1.5	1.3	1.3	1.4	1.0	.8	.8	1.0	1.4	1.1	1.0	20.7	12.3
Mississippi	1.1	1.1	1.0	.9	.9	.8	.5	.6	.7	.8	.7	.8	18.5	12.5
West South Central	10.2	9.9	9.0	9.5	9.3	8.3	6.4	7.2	8.2	8.8	8.7	8.0	31.6	21.2
Arkansas	1.2	1.0	1.0	.8	.9	.7	.6	.5	.5	.8	.8	.5	18.9	9.7
Louisiana	1.1	1.0	.9	1.0	1.1	1.0	.9	1.0	1.1	1.2	1.1	1.1	20.9	17.7
Oklahoma	2.9	3.0	2.5	2.6	2.4	2.0	1.3	1.5	1.9	2.1	1.8	1.7	30.2	22.4
Texas	5.0	4.9	4.6	5.2	5.4	4.6	3.7	4.1	4.4	5.7	5.1	4.6	34.2	25.8
Mountain	3.4	3.1	3.4	3.4	3.5	3.3	3.6	3.6	3.4	3.8	3.4	3.6	37.2	33.0
Montana	.4	.5	.6	.6	.6	.5	.4	.4	.4	.5	.6	.5	40.5	30.1
Idaho	.5	.5	.4	.4	.4	.4	.3	.2	.2	.4	.4	.4	36.1	29.8
Wyoming	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3	.3	.3	39.9	41.6
Colorado	1.3	1.0	1.1	1.0	1.0	1.0	1.0	.9	.8	1.0	.9	1.0	38.0	33.5
New Mexico	.3	.2	.2	.3	.3	.3	.2	.2	.2	.3	.3	.3	27.5	25.8
Arizona	.3	.3	.4	.4	.5	.3	.3	.2	.2	.3	.4	.4	42.5	31.4
Utah	.4	.4	.4	.4	.4	.4	.3	.3	.3	.4	.4	.4	33.4	27.9
Nevada	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2	49.8	52.8
Pacific	9.3	8.8	8.8	8.5	8.9	8.3	9.0	9.1	8.4	8.1	9.5	10.3	45.1	49.3
Washington	1.2	1.3	1.3	1.3	1.4	1.6	1.2	1.0	1.1	1.2	1.3	1.0	36.4	33.1
Oregon	1.0	1.0	1.0	.8	.8	.7	.6	.7	.8	1.0	1.0	1.2	38.4	39.8
California	7.1	6.5	6.5	6.2	6.6	7.0	7.1	6.5	6.5	6.2	7.2	7.5	46.3	43.3

[1] Estimated.

those of any other area, had moved from sixth place to fourth, while the South Atlantic States dropped from fourth to fifth place. The West South Central States dropped from fifth to sixth place, and the three sections with the smallest sales, the New England States, the East South Central States, and the Mountain States, showed no change in their relative positions.

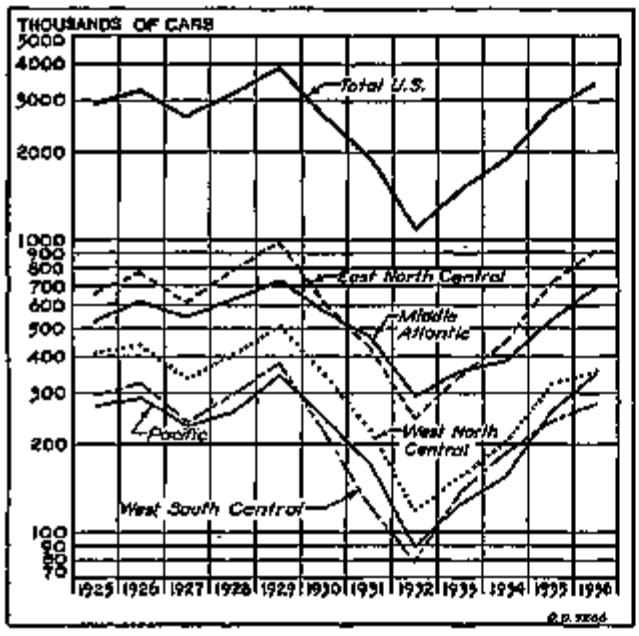

Figure 6.—New Passenger-Car Registrations in the United States and in Selected Geographical Areas. (R. L. Polk & Co.)

In every year recorded in the table, New York State has been the largest purchaser of passenger cars, and Pennsylvania has been consistently second. New York is about one-fourth larger in population than Pennsylvania, but sales per 1,000 population are slightly smaller in the former. During the depression, sales in New York State did not fall off so sharply as in the country as a whole. For the years, 1931–32, sales in this one State were more than half again as large as in Pennsylvania and larger than for any other entire geographical division except the East North Central States.

In figure 6 the five geographical areas charted accounted for more than three-fourths of all car sales in 1936. Over the long term the chart shows the tendency toward a constant relationship between sales of cars in all geographical areas. Here, equal distances on the vertical scale indicate equal percentage changes. Thus, a 40-percent decline in sales in both the East North Central district and the Mountain district in 1930 as compared with 1929 is represented by an equal change on the vertical scale, even though sales in the former were seven times as large as in the latter. When the curves run parallel, the percentage changes are the same, and the relative contribution of these areas compared to total sales remains the same.